



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,552	06/25/2003	Zhong Yi Ding	2003B064	5492

23455 7590 11/09/2005

EXXONMOBIL CHEMICAL COMPANY
5200 BAYWAY DRIVE
P.O. BOX 2149
BAYTOWN, TX 77522-2149

EXAMINER

BULLOCK, IN SUK C

ART UNIT	PAPER NUMBER
----------	--------------

1764

DATE MAILED: 11/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/603,552	Applicant(s) DING ET AL.	
	Examiner In Suk Bullock	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/25/03 & 304/05</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1764

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendriksen et al. (6,559,248) in view of Miller et al. (6,403,854).

The reference to Hendriksen et al. discloses a process for producing olefins from oxygenates wherein the process comprises contacting an oxygenate feed with a molecular sieve catalyst to produce an effluent stream comprising ethylene, propylene, and oxygenate contaminants (col. 2, lines 40-48 and col. 6, lines 6-24). Oxygenate contaminants are defined as to include alcohols (e.g., methanol, ethanol, etc.), aldehydes, and ketones (col. 3, lines 41-48). Diluent such as CO₂ can also be present in the feedstock (col. 9, lines 2-4). Hendriksen discloses where contaminants are at a relatively high level, it is desirable to first use a quench process to remove substantial quantity of the contaminants followed by further treatment. A quench process comprises contacting the effluent stream with a quench liquid. The quench liquid can be any fluid that is a liquid at 1 atm and is capable of removing oxygenate contaminants (water is the preferred medium). See col. 2, line 62 to col. 3, line 25. Olefins produced from the process can be catalytically polymerized to form polyolefins (col. 10, lines 4-24). See particularly Example 1 in col. 11 which shows about 69% removal of acetaldehyde from the quenching step.

Hendriksen does not disclose pH of the quench medium.

The reference to Miller et al. reference teaches a method for removing impurities from OTO effluent stream comprising injecting a neutralization material into a first quench tower to neutralize organic acids present in the effluent stream. An aqueous stream (comprising organic acids, water, oxygenates, and

Art Unit: 1764

catalyst fines) is removed from the quench tower bottoms and a portion of the aqueous stream is returned to the tower. The neutralization material comprises caustic. See col. 9, lines 10-22 and col. 10, lines 14-49. A portion of purified water stream from a second quench tower is sent to the first quench tower as a make up stream (col. 11, lines 26-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Hendriksen by utilizing a quench medium comprising water and caustic as taught by Miller because Miller has disclosed such quench medium is effective for removing organic acids, water, oxygenates and catalyst fines and Hendriksen discloses employing any quench liquid which is effective to remove oxygenate contaminants from the effluent stream. Although Miller does not disclose the pH of the quench medium, it is within the level of one ordinarily skilled in the art to determine the effective pH of the quench medium to remove the desired contaminants.

It is conceded that neither reference discloses removal of carbon dioxide. It is well known in the art carbon dioxide is a by-product of OTO process. It is also well known in the art caustic solution is effective for removal of carbon dioxides. Thus, the process of Miller et al. would also remove carbon dioxide since caustic is employed in the process for removing organic acids.

With respect to the claimed level of contaminant removal, e.g., 95 wt% more of water, it is expected that the process of Hendriksen would yield similar results since the process is similar to the claimed invention. Also, it is within the

Art Unit: 1764

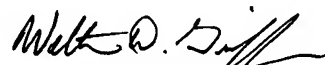
level of a skilled artisan to modify the process of Hendriksen by adjusting the composition of the quench medium and operating conditions such as temperature and pressure to remove desired amount of contaminants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I.B.


Walter D. Griffin
Primary Examiner